



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/451,665	11/30/1999	SHUNPEI YAMAZAKI	07977/017002	9359
26171	7590	07/03/2006	EXAMINER	
FISH & RICHARDSON P.C. P.O. BOX 1022 MINNEAPOLIS, MN 55440-1022			SCHILLINGER, LAURA M	
			ART UNIT	PAPER NUMBER
			2813	

DATE MAILED: 07/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/451,665

Applicant(s)

YAMAZAKI ET AL.

Examiner

Laura M. Schillinger

Art Unit

2813

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 2, 4, 5, 7-13, 15, 16, 18-23, 25, 26, 28-34, 36, 37 and 39-83 is/are pending in the application.
- 4a) Of the above claim(s) 12, 13, 15, 16, 18-23, 25, 26, 28-34, 36, 37 and 39-83 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4, 5 and 7-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 8/17/05, 2/16/05.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claims 1-2, 4-5, and 7-11 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Farrenkopf et al et al et al ('315).

In reference to claim 1, Farrenkopf et al et al teaches a method comprising:

forming a crystalline semiconductor film on an insulating surface (Fig. 9l.2 (22))

forming an insulating film on the semiconductor film (Fig. 9m.1(168); Fig. 11d.1 (44/50);

introducing a dopant through the insulating film by an ion doping (Fig. 9n.1(P) see also,

Col.23-26-teaching the same for 50);

annealing the crystalline semiconductor film to repair lattice defects (Col.22, lines: 25-35;

Col.26, lines: 1-10);

forming a gate electrode over the insulating film (Fig. 11d.1

(48A and B)); and

forming a channel region in the doped region of the crystalline semiconductor film

(Col.23-24, lines: 65-5);

Art Unit: 2813

wherein a peak of a concentration of the dopant profile is located in the insulating film (inherent for layers 44 and 22 where the oxide is used as a mask and no impurities pass into the underlying semiconductor layers).

In reference to claim 2, Farrenkopf et al et al teaches wherein the insulating film is SiO (Col.22, lines:25, Col.23, lines:50-55).

In reference to claim 4, Farrenkopf et al et al teaches wherein the first dopant is B (Col.22, lines: 15-25).

In reference to claim 5 Farrenkopf et al et al teaches wherein the semiconductor film is polycrystalline Si (Col.8, lines:20-35).

In reference to claim 8, Farrenkopf et al et al teaches wherein the insulating film is removed (Col.22,line:25).

In reference to claims 9 and 10, Farrenkopf et al fails to explicitly teach wherein the semiconductor device as the result of claim 1 is used in as a AMD nor a shift register having TFTs (however, the device as formed is automatically rejected with claim 1 and it is inherent that the device structure could be used in a AMD setting or as a shift register).

Claim Rejections - 35 USC § 103

Art Unit: 2813

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farrenkopf et al as applied to claim 1 above, and further in view of Takemura et al ('762).

In reference to claims 7 and 11, Farrenkopf teaches the limitations of claim 1 however fails to specify wherein B is supplied by diborane gas teaches and a step of irradiating a laser light to the crystalline semiconductor film. However Takemura teaches a similar method including wherein B is supplied by diborane gas (Col.7, lines: 20-25) teaches and a step of irradiating a laser light to the crystalline semiconductor film (Col.5, lines: 45-55). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Farrenkopf to further include the teachings of Takemura because the use of laser annealing and diborane are well known techniques to perform lattice repair and supply boron dopants.

Response to Arguments

Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

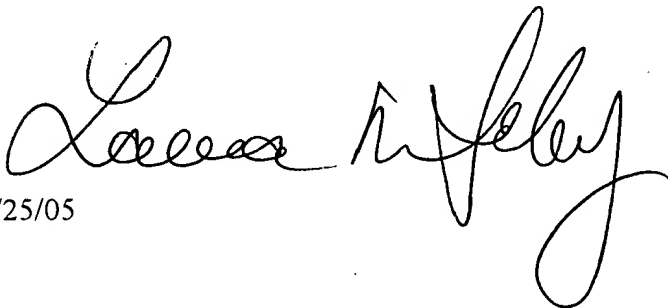
Art Unit: 2813

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura M. Schillinger whose telephone number is (571) 272-1697. The examiner can normally be reached on M-T, R-F 7:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl W. Whitehead, Jr. can be reached on (571) 272-1702. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Laura M. Schillinger', with a large, stylized flourish at the end.

10/25/05

Laura M Schillinger
Primary Examiner
Art Unit 2813